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VIII
SOME NOTES ON OREOHELIX

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Oreohelix peripherica castanea (Hemphill) has long been a puzzle to me. A great deal of material from Mr. Hemphill in many public and private collections, labelled *castanea*, or rather *castaneus*, bears no resemblance to the form that he originally designated by that name. For example, there are in the University of Colorado Museum seven such lots from the Hemphill collection. The specimens from White Bird, Idaho, labelled *castaneus*, are just like some that are labelled *bicolor*, while two others from the same place, labelled *castaneus*, show some indications of the variegated colors of *variabilis*, but are more depressed and differ in sculpture and some other characters. White Bird is a locality where some extensive and intensive collecting should be done and the material from each station studied as a whole, before being divided into varieties, in order to comprehend the real significance of Hemphill's "varieties."

I have always considered *castanea* a very slightly differentiated color form, almost an exact synonym of *Oreohelix peripherica albofasciata* (Hemphill)¹ and still do, but that does not dispose of the whole problem. Henry Hemphill, in his

¹ See Henderson and Daniels, Proc. Acad. Nat. Sci., Phila., LXVIII, 330-334, 1916. Henderson, Univ. Colo. Studies, XIII, 116-117, 1924. Pilsbry, Proc. Acad. Nat. Sci., Phila., LXVIII, 343-357, 1916.

notes published by Binney,² gives an account of an interesting and variable fauna of snails which Binney called *Patula*, but now called *Orcohelix*, at the locality where the Bear River breaks through the low range of mountains south of Cache Junction, Utah, into the Salt Lake Valley. Among other things, he says that at the foot of a cliff he "found a colony of the ribbed variety *castaneus*. This spot is continually shaded, the sun never shining on it. Most of this colony are faintly marked with the broad white band of *albofasciata*, but a few are plain chestnut-colored." This is plainly the type locality of *castanea* and the vicinity is also the type locality of typical *albofasciata* and several other varieties of *peripherica*. On page 32, Binney gives the localities for *castanea* as follows: "Box Elder County, Utah; also Celilo, 15 miles from The Dalles, Oregon. (Hemphill.)" In a footnote he says of the Celilo colony: "Probably a colony brought down by the Columbia. It was not found on a subsequent visit." Whence was it brought by the Columbia? Surely not from the Box Elder County locality, which is the type locality of *castanea*, for that is not in the Columbia drainage and has not been except when, during the greatest Pleistocene expansion of ancient Lake Bonneville, it established an outlet at the northern end of the basin. Furthermore, the Celilo colony is not the same thing at all as that called *castaneus* by Hemphill in his note.

On Plate 2, figures 11 and 14, Binney shows *castanea* as a rather dark, strongly-ribbed form, one figure being quite high-spired, as in typical *albofasciata*, the other being depressed, but such difference in elevation is often seen in colonies of *Orcohelix*. It seems perfectly clear that the Utah material first mentioned by Hemphill and figured by Binney in his figure 14, if not figure 11, must be considered the typical form—the real *castanea*—and figure 14 the type figure. It seems also perfectly clear that this is merely a variable melanistic form of *albofasciata*, in which the broad, white peripheral band is more or less obscured by a wash of brown, a phenomenon not at all uncommon in *Orcohelix*, especially in *O. depressa*. All of the material assignable to *peripherica* or any of its varieties that

² Binney, 2nd Supplement to 5th Vol. Terr. Air-breathing Moll. U. S. and adjacent territories, p. 31, 1886.

I have seen in collections, or found myself, have been from the Salt Lake Valley and its tributaries.

Binney and Hemphill called all snails now placed in the genus *Oreohelix* varieties of *Helix* (or *Patula*) *strigosa*, even such very diverse things as *haydeni* and *cooperi*. In the University of Colorado Museum three examples (No. 7140) from the Hemphill collection are labelled "*H. strigosa* v. *castaneus*, Utah." Two of them are almost typical *albofasciata*, but the other has the peripheral band somewhat obscured and may be considered *castanea*. In what Hemphill considered his "Main Collection," now in the California Academy of Sciences, of lot No. 7589, bearing a similar label, there are five specimens, all quite dark, the peripheral band showing but dimly, hence typical *castanea*. Lot No. 7590, four specimens, bearing a similar label with the additional words "paler—longer," are light, uniform brown. I have selected the best example of No. 7589 in the Academy collection as a lectotype, which has been assigned the number 2986 in the type collection (C. A. S.). It is fully adult and has five whorls. Its size, form and sculpture are well represented by Binney's figure 14; figure 1 accompanying the present paper is from a photograph of it by the author; diameter 15.5, altitude 13 mm. In the University of Colorado Museum there are two specimens of this form that I found near the tunnel at Wheelon, Utah, very close to the northern boundary of Box Elder County, and certainly but a very short distance from the type locality of *castanea*.

The Oregon material presents greater difficulty. In order fully to understand the Hemphill material scattered through many collections, one must remember that he had a habit of dividing the specimens from a given colony into "varieties," based mostly upon slight differences in color or elevation of spire, often well marked in typical examples but grading completely into one another, and the division of his material was not always made altogether consistently. Furthermore, he was very careless about his locality labels, left many of them very vague, and did not give the locality in the same language in the different "varieties" from the same colony.

Thus his *Oreohelix* material from Oregon probably all came from the single colony at Celilo, as I concluded from an examination of the material itself, though some of it is labelled

merely "eastern Oregon," and Celilo is not in eastern Oregon, except in the loose sense in which the term "eastern" is often used to distinguish the more arid portions of Washington and Oregon from the moist belt of the western portions of the states. Celilo is on the northern boundary of Oregon west of the middle north-south line. To reinforce the conclusion drawn from an examination of the material, we have the fact that Hemphill and Binney mention no other Oregon locality for this genus than Celilo, and the further fact that in three of five lots examined the locality is given as "eastern Oregon, near Celilo." California Academy of Sciences' Nos. 7681 and 7684 are labelled *Helix strigosa* var. *cooperi*, while Nos. 7587 and 7588 are labelled *Helix strigosa* var. *castaneus*, yet I am rather confident that these all came from one variable colony, such as are not uncommon with the genus *Oreohelix*, and I am equally confident that they have nothing to do with either *cooperi* or the form that he called *castaneus* from the type locality in Utah. No. 7587 carries the additional words "elevated, smooth," while No. 7588 reads "depressed, smooth, one reversed." University of Colorado Museum No. 7142, from the Hemphill collection, is labelled "*Helix alternata* Say var. *castaneus* Hemphill, eastern Oregon." I believe this lot is also from Celilo. I cannot identify any of this Oregon material with any described species and am therefore naming and describing it as new.

***Oreohelix variabilis* Henderson, new species**

Plate 24, figures 2, 3, 4

Shell rather elevated, solid, whitish, variegated with small, irregular, very light-brown blotches; whorls $5\frac{1}{2}$, fairly convex, bluntly angled at the periphery, the angulation continuing at least to beginning of last whorl, but not to the aperture; transverse sculpture rather coarse, irregular striæ, about as in *cooperi* and *depressa*, crossed by very fine, obscure, irregular, incised, spiral lines. Under a lens of good power the whole surface of the last whorl appears rough and coarse. The last whorl turns more decidedly downward toward the aperture than in most species of *Oreohelix*, the ends of the peristome

coming rather close together and being connected by a very thick callus, thus forming an almost continuous peristome. This feature is not entirely accidental, as it is as well developed in several other specimens, though on others the callus is thinner and the downward turn of the whorl not quite so pronounced. The aperture is very oblique, somewhat wider than high, the abrupt downward turn at the base giving the appearance of a strong rib within, parallel with the lip. Diameter 22 mm.; altitude 16 mm. The smallest example in this lot of 12 specimens has a diameter of 15 mm., altitude 11 mm.

Holotype: No. 2987; *paratypes*: Nos. 2988, 2989, Mus. Calif. Acad. Sci., from **Celilo, Oregon**. Henry Hemphill collector.

Some examples of this lot exhibit a few faint, narrow, spiral color bands both above and below the periphery. Four specimens of the five in lot No. 7681 exhibit one strong brown band just below the periphery, a broad band just below the suture, the two separated by a whitish band, with traces of finer bands on the base. The fifth example is coarsely ribbed, with broad, blackish bands, and does not seem to belong with the rest at all. It is not unlikely that it belongs with the Utah material and was mixed with this lot before the material was numbered. I have found much evidence of such mixtures in Hemphill's collections. Lot No. 7587 consists of five slightly more elevated shells, each pretty well covered with a reddish-brown wash, but on the base showing the characteristic coloring of this species and being in other ways unlike *castanea*. The same is true of the five examples in lot No. 7588, but they are rather depressed and one of them is reversed. The five specimens in lot No. 7142, University of Colorado Museum, are similar to No. 7587, but average a little smaller.

In the more elevated examples of *variabilis* the spire is distinctly more straightly conical than in elevated forms of *cooperi* or *peripherica* (+*castanea*, etc.), which tend more toward a dome-like outline. Dr. Henry A. Pilsbry writes me that he has found in the Hemphill material in the Academy of Natural Sciences of Philadelphia two topotypic specimens of *O. variabilis* which long ago had been placed with their large collection of *cooperi* and hence overlooked.

PLATE 24

- Fig. 1. *Oreohelix peripherica albofasciata*, color form *castanea* (Hemphill)' diameter, 15.5 mm.; lectotype No. 2986 (C. A. S. type coll.), from Box Elder Co., Utah; p. 221.
- Fig. 2. *Oreohelix variabilis* Henderson, new species; diameter, 22 mm.; holotype No. 2987 (C. A. S. type coll.), from near Celilo, Oregon; p. 224.
- Fig. 3. *Oreohelix variabilis* Henderson, new species; diameter, 20.1 mm.; paratype No. 2988 (C. A. S. type coll.), from near Celilo, Oregon; p. 224.
- Fig. 4. *Oreohelix variabilis* Henderson, new species; diameter, 19.4 mm.; paratype No. 2989 (C. A. S. type coll.), from near Celilo, Oregon; p. 224.
- Fig. 5. *Holospira aguerreveri* Hanna & Hertlein, new species; true length 21.7 mm., diameter 6.0 mm.; holotype No. 2848 (C. A. S. type coll.), from 16 kilometers north of Ramos Arizpe, Coahuila, Mexico; p. 219.
- Fig. 6. *Holospira aguerreveri* Hanna & Hertlein, new species; side view of specimen shown in fig. 5; p. 219.
- Figs. 7, 8, 9. *Helminthoglypta berryi* Hanna, new species; diameter, 22.5 mm.; holotype No. 1492 (C. A. S. type coll.), from eight miles north-east of Bakersfield, Kern County, California; p. 217.
- Figs. 10, 11. *Pecten (Plagioctenium) ericellus* Hertlein, new species; altitude, 28 mm.; holotype No. 2998 (C. A. S. type coll.), from locality 1132 (C. A. S.), Pacific Beach, San Diego, California. Pliocene; p. 215.



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3



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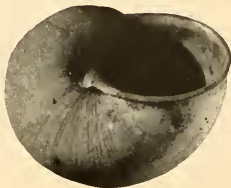
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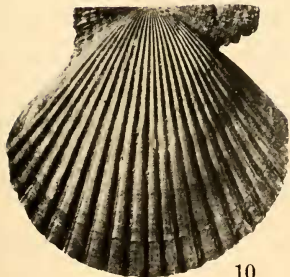
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